

**20-1025 (Lead); 20-1138 (Consolidated)**

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**UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

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ENVIRONMENTAL HEALTH TRUST, et al.,  
CHILDREN'S HEALTH DEFENSE, et al.,  
*Petitioners,*

v.

FEDERAL COMMUNICATIONS COMMISSION,  
UNITED STATES OF AMERICA,  
*Respondents.*

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PETITION FOR REVIEW OF FINAL ORDER OF THE  
FEDERAL COMMUNICATIONS COMMISSION

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**AMICUS BRIEF OF  
BUILDING BIOLOGY INSTITUTE  
IN SUPPORT OF PETITION  
FOR REVIEW OF FINAL ORDER**

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James S. Turner  
Swankin & Turner  
1601 18th St. NW #4  
Washington, DC 20009  
Tel: (202) 462-8800  
Fax: (202) 315-2501  
[jim@swankin-turner.com](mailto:jim@swankin-turner.com)

*Counsel for Amicus Curiae*

Julian Gresser, Of Counsel  
Swankin & Turner  
P.O. Box 30397  
Santa Barbara, CA 93130  
Tel: (805) 708-1864  
[juliangresser77@gmail.com](mailto:juliangresser77@gmail.com)

*Counsel for Amicus Curiae*

**AMICUS BRIEF OF BUILDING BIOLOGY INSTITUTE  
IN SUPPORT OF PETITION FOR REVIEW OF FINAL ORDER**

**RULE 26.1 DISCLOSURE STATEMENT**

Pursuant to the United States Court of Appeals for the District of Columbia Rule 26.1 and Federal Rule of Appellate Procedure 26.1, Amicus Curiae Building Biology Institute (BBI) respectfully states that it is a 501(c)(3) non-profit corporation with no parent companies, subsidiaries or affiliates and has not issued shares to the public.

**CERTIFICATE AS TO PARTIES, RULINGS, RELATED CASES, AND  
FILING OF SEPARATE BRIEF**

As required by Circuit Rules 28(a)(1) and 29(d), counsel for amicus curiae hereby certify as follows:

**A. Parties and Amici**

All parties, intervenors, and amici appearing in this court are listed in the Petitioners' Joint Opening Brief.

**B. Decision Under Review**

FCC, Resolution of Notice of Inquiry, Second Report and Order and the Memorandum Opinion and Order, addressing *Proposed Changes in the Commission's Rules Regarding Human Exposure to Radiofrequency Electromagnetic Fields*, ET Docket No. 03-137, and *Reassessment of Federal*

*Communications Commission Radiofrequency Exposure Limits and Policies,*

ET Docket No. 13-84, in FCC 19-126; 85 Fed. Reg. 18131 (Ap. 1, 2020).

**C. Related Cases**

None.

**D. Separate Brief**

Rule 29(d) states: “Single Brief. Amici curiae on the same side must join in a single brief to the extent practicable.” Amicus Building Biology Institute has consulted with counsel to the other amici, Natural Resources Defense Council and Dan and Catherine Kleiber, to explore joining briefs. However, because the perspectives, legal, and policy issues are distinct, and in some cases fundamentally different, the parties are unable to find any practicable way to join their briefs.

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## **GLOSSARY**

ADHD — Attention Deficit/Hyperactivity Disorder

BBEC — Building Biology Environmental Consultant

BBI — Building Biology Institute

BBNC — Building Biology New Build Consultant

CHD — Children's Health Defense

HUD — Department of Housing and Urban Development

EHS — Electro-Hyper-Sensitivity

EMRS — Electromagnetic Radiation Specialist

EHT — Environmental Health Trust

FCC — Federal Communications Commission

IoT — Internet of Things

RFR — Radio Frequency Radiation

RF — Radio Frequency

**AMICUS CURIAE, BUILDING BIOLOGY INSTITUTE  
(IDENTITY AND INTEREST)**

The mission of the Building Biology Institute (BBI), a 501(c)(3) non-profit corporation, now in its thirty-third year (as of 2020), is to enable professionals and the general public to create and live in healthy homes, schools, and workplaces free of toxic indoor air, tap-water pollutants, and hazards posed by electromagnetic radiation exposure. The Building Biology Institute certifies environmental consultants, electromagnetic radiation specialists, and healthy building design consultants to help meet the ever-increasing public demand for proven methods that secure homes, schools, and workplaces from toxic indoor compounds and electromagnetic pollution. Consequently, BBI, its certified graduates and its supporters, have a vital interest in the Court's vacating and remanding the FCC's Order in order to protect the health and safety of residents and businesses.

**STATEMENT OF AUTHORITY TO FILE AND AUTHORSHIP  
AND FINANCIAL CONTRIBUTIONS**

This Amicus Brief is filed pursuant to Rule 29(a)(2) of the Federal Rules of Appellate Procedure and Corresponding Circuit Rules of the District of Columbia Circuit. This brief was not authored in whole or part by counsel for a party. No party or counsel for a party, and no person other than the amicus curiae or their counsel, contributed money intended to fund its preparation or submission.

## SUMMARY OF ARGUMENT

The Federal Communications Commission (FCC)'s thermal-based radio-frequency radiation (RFR) regulations<sup>1</sup> are grossly deficient. They are based on false assumptions and do not recognize how biological systems respond to non-thermal radio-frequency radiation. The public is being exposed to huge amounts of radio-frequency radiation at levels far exceeding the limits deemed to be safe by a significant body of international peer-reviewed scientific studies and clinical/medical evidence, referenced in Petitioners Environmental Health Trust (EHT) and Children's Health Defense (CHD)'s joint opening brief.

Amicus's concerns are longstanding. The President of the Board of Directors of Building Biology Institute (BBI), Lawrence James Gust, expressed his deep concerns about the FCC's flawed policies as early as seven years ago. Lawrence James Gust, President of the Board of Directors of BBI, re: FCC 19-39, August 20, 2013, Comment to the FCC, Ex. A. The FCC has continued to ignore these concerns, and now, once again, they are before this Court.

The crux of the matter is that the FCC's maximum human exposure limit is based on the false assumption that non-thermal radiation is not and cannot be harmful. The regulations use extensive averaging and do not account for pulsed digital signals occurring in milliseconds. The regulations therefore vastly underrate

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<sup>1</sup> 47 CFR Parts 1, 2, 18; 85 Fed. Reg. 19,117 (April 6, 2020); <https://www.govinfo.gov/content/pkg/FR-2020-04-06/pdf/2020-06966.pdf>



the power density (typically measured in milliwatts per square centimeter, or  $\text{mW}/\text{cm}^2$ ) that the human body experiences when it is continuously exposed to pulsed, modulated radio-frequency radiation (RFR).

The FCC human RFR exposure regulation is  $1 \text{ mW}/\text{cm}^2$ . However, the FCC is currently certifying a wide range of devices, each of which is permitted to emit a maximum of  $1 \text{ mW}/\text{cm}^2$ . The regulation fails to account for aggregate effects. No human today is exposed to RFR from just one device. There are dozens or more devices exposing humans in the aggregate. BBI practitioners actually measure this aggregate RFR exposure on the human body.

This aggregate exposure is dramatically accelerating with densifying 4G/5G/6G implementation involving Internet of Things (IoT), towers, and small cell facilities in close proximity to residences, schools, offices, and health care facilities. More and more people are at risk. By refusing to expand, refine, monitor and enforce safe human RFR exposure limits, based on an increasing body of scientific and clinical evidence, the FCC is acting in direct conflict with the public interest.

The Building Biology Institute's certified practitioners operate at ground zero. They are alleviating the suffering of thousands of people in the United States. For these individuals and their families, the implementation of mitigative measures recommended by BBI certified practitioners offers a last hope for particularly

biologically vulnerable members of the public, including children, elderly, disabled persons, pregnant women, and those with special RFR sensitivities. In many cases, medically normal people, after being exposed to aggregate levels of RFR, become suddenly ill. Sensitivities can be developed by anyone, at any time, depending on exposures.

By refusing to assess health risks and establish health regulations based on considerable scientific peer reviewed studies, the FCC is jeopardizing the lives of millions of people; for the most vulnerable people, who are chronically exposed to RFR contamination, the FCC's policy may constitute a death sentence.

## **ARGUMENT**

### **I. What is the Building Biology Institute Inc. (BBI)?**

The mission of the Building Biology Institute (BBI)<sup>2</sup>, a 501(c)(3) non-profit corporation, now in its thirty-third year (as of 2020), is to enable practitioners and the general public to create healthy homes, schools, and workplaces free of toxic indoor air, tap-water pollutants, and hazards posed by electromagnetic radiation exposure. BBI is the only educational entity in the United States that trains, equips and certifies professionals in the holistic evaluation of the built environment.

BBI fulfills its mission by guiding both the general public and working professionals (architects, builders, engineers, interior design professionals,

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<sup>2</sup> <https://buildingbiologyinstitute.org/>

physicians, nurses, other health care practitioners, real estate professionals, etc.) to an understanding of the vital and complex interrelationship between the natural and built environments, and provides the practical means on the ground to merge these complementary environments into greater harmony and planetary health.

BBI was founded in 1987 in Clearwater, Florida, based on the Principles of Building Biology brought from Germany to the English-speaking world by the international architect Helmut Ziehe. BBI's three professional certifications are based on specific online study requirements, plus multi-day on-site seminars and a mentored final project:

- Building Biology Environmental Consultant (BBEC)
- Electromagnetic Radiation Specialist (EMRS)
- Building Biology New Build Consultant (BBNC)

To be listed as a practicing professional on the BBI website, certified BBEC professionals must provide approved continuing education credits from courses obtained through BBI, or other institutions if approved in advance.

**Note on Case Reports (based on Declaration of Lawrence J. Gust, President of the Board of Directors, Building Biology Institute, Addendum, p. AB 14):**

The Addendum to this brief contains a collection of eleven case studies reporting client experiences of BBI practitioners in the field, dealing with the effects of Radio Frequency Radiation (RFR) over a range of power densities and

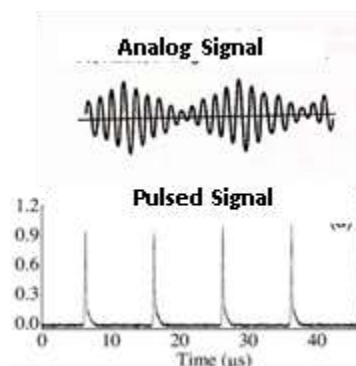
RFR sources (see Addendum). There is no typical client for a Building Biologist.

The case studies cut across a range of ages and income levels.

**Excerpt from Declaration of Lawrence J. Gust, President of the Board of Directors of the Building Biology Institute (Addendum, p. AB 14):**

These Building Biologists used Total Power Density RF meters made by GigaHertz Solutions, GmbH in Germany. The data from these meters is recognized by medical and legal authorities in Germany. The primary meter used in these assessments was the HFE59B, with a frequency range 27 MHz to 3.3 GHz, and sometimes in addition, we used the HFW59D meter with a frequency range of 2.4 to 10 GHz to extend the frequency range of the measurement into frequencies that the wireless service providers have recently or will soon be using.

These meters measure peak power density, not average power density (as used by the FCC). The use of average power density made sense before 1980 because the most common signal was analog. That is, there was a signal present all of the time (top graph), not just a series of energetic pulses with long, no-energy spaces in between (bottom graph). Using average measurement of digital (pulsed) signals is meaningless as explained below.



Today, nearly all signals are digital—meaning the signal is zero in amplitude (i.e. strength), except when it is a strong, very short pulse, essentially the antithesis of an analog signal. Average measurement designed for analog signals of yesteryear cannot “see” digital signals.

Thus, purely from a physics perspective, one must use a peak measuring meter to accurately detect and quantify digital signals.

A significant number of years ago the EMF research community switched to evaluating digital RF strength with peak meters to better assess biological health effects. This was an important change because there is a much higher correlation between health effects and digital RF exposure when one uses peak measurement.

For Building Biologists who are working with real clients and using peak measurements to quantify the actual real-world situation, the relationship between radio frequency exposure and biological effects is fully apparent as the following eleven stories will attest. These health effects exist because the real world has moved well beyond the obsolete, crude analog/average thermal effects paradigm upon which the FCC safety regulation is based.

In all cases reported here, the peak RF power (density) levels needed for symptom abatement – and to end suffering – are far below the FCC guidelines that use the average power density level. The use of average significantly underplays the actual power level experienced by the human body from moment to moment. Even with the tremendous minimizing advantage of using averaging, these outdated FCC safety guidelines do not come close to protecting people from significant suffering, declining health and sometimes suicide.

## II. The Voice of Suffering

Building Biologists often care for clients who are ill and desperately struggling simply to survive in their own homes from RFR exposure. Clients include children and parents, professional people and elderly citizens, those with preexisting serious disabling conditions, and others who have recently become Electro-Hyper- Sensitive (EHS). Most of these victims are people of modest financial means, who do not have an easy opportunity to escape exposure. **None have consented to be irradiated.** More specifically, they are being told the radiating devices are "safe." They trust the government and the equipment manufacturers to have their best interests and safety at heart. Nothing is further from the truth. In ignorance, they are being placed in harm's way. For these clients

and thousands like them, the services of Building Biologists are a lifeline to their former balanced and healthy lives.

More and more people and children will certainly develop sensitivities in the future. This is because bringing 4G/5G antennas to residential streets will increase power density by a factor of 100 to 400 times current levels inside people's homes.

The following excerpts from the cases reported in the Addendum describe the personal calamity of RFR contamination:

**Excerpt from Case #3 (Declaration of Dave Green, Addendum. p. AB 11):**

Jane writes: "Skin burning...red face when working in front of the computer, and severe insomnia, anxiety, and buzzing in my head while I was in my bedroom. The buzzing in my head was so maddening at times I thought this was an extreme form of torture. The insomnia plagued me for years with no relief to the point I would think the only relief I would get would be from death. I would sleep for 2 hours, wake up sweaty, and toss and turn. When I would finally fall asleep and then when I would wake up I would have no energy. I would have no desire to do anything, because I am so fatigued that all I can do is sit in a chair. I went to many doctors for this problem. I was prescribed the usual pills for depression, and sleep aids, all to no avail. Nail biting... anxiety when I would sit in the Great Room. I would constantly chew on my fingernails! My husband would ask, "Can you please stop chewing on your fingernails?" I would reply, that I would chew off my fingers if I could...the urge was that great!! I also had nausea and ill feelings in the kitchen."

**Excerpt from Case #4 (Declaration of Lawrence J. Gust, Addendum. p. AB 14):**

In the words of Michele, the mother:

My eight years old daughter had started to vomit uncontrollably at night, sometimes for hours. The doctors had no answers for us, saying that little girls often have tummy aches. It was absolute hell. We would sit on the floor

beside the toilet sometimes for six hours at night while she threw up repeatedly, even when there was nothing left in her tummy.

Then she developed arthritis. She would twist her ankles, wrists, hips and neck to try to get relief. She was diagnosed with idiopathic, poly-articular, juvenile arthritis, which translates to swelling and pain in multiple joints in a child with an unknown cause.

It seemed like her system was on fire as her gut and her joints were inflamed and painful. She had always been healthy-looking and had a glowing complexion, but her complexion became pale. She had circles under her eyes and she was in constant pain in her joints and tummy.

My ten years old son had brain fog, difficulty concentrating, and mood issues. He began to have difficulty getting along with his friends at school. He began to lose control of his bowels and did not know when he needed to go and would soil himself. I found his journal and in it he said, 'I have no friends, I poop my pants and I want to kill myself.'

This child had always been very healthy and happy. He was extremely smart, meeting all of his milestones early. He had a great sense of humor. He had always had an easy time making friends and getting along with everyone. Now his little life was inexplicably falling apart. He was always angry, hated school, had trouble getting along with others and couldn't eat the foods he used to enjoy. A psychologist diagnosed him with "negative affect" and ADHD symptoms. Like the rest of the family, he also began to have more and more food intolerances. He began to be called "Allergy Boy" at school. He also suffered from constant sinus infections. It was suggested that something was affecting his nervous system so that his digestion system was not properly regulating, causing the food intolerances and bowel issues but no one knew what that something was.

My husband, Bruce, was diagnosed with Hashimoto's Encephalopathy. He suffered from brain fog, difficulty concentrating, memory problems, extreme irritability, bad moods, gut issues and difficulty sleeping. He says today that there were six months that his cognition was severely impaired and during this time he does not remember anything. He had to rely on others at work during that period. He remembers his all-consuming fear that he would not be able to keep his job.

**Additional Declaration of Carey MacCarthy, Addendum. p. AB 39:**

This Declaration lends additional insight into the suffering of RFR victims in several important respects.

**Carey MacCarthy** is a professional healthcare specialist who formerly worked at the Indian Health Services in New Mexico. She was exposed to RFR contamination from a cell tower installed by AT&T 600 feet from her office. She became ill. Having researched best practices of Building Biologists, she asked Indian Health Services to remediate her office by installing different shielding paints, fabrics and window coverings. Her request was denied on the grounds that they were unaware of the issue and solutions, and told her the cost of remediation was prohibitive. Therefore, Ms. McCarthy had to leave her employment. She filed a workers compensation claim with a supporting medical opinion by Professor Sharon Goldberg, MD, a nationally recognized expert in the new medical discipline of clinical electromagnetics. This claim was denied. Meanwhile, her professional life has been destroyed, and she has since been diagnosed with a serious immune illness.

**III. Economic Costs to Homeowners of Security Against  
Radio Frequency Radiation (RFR) Exposure  
(based on Declaration of Lawrence J. Gust, Addendum, p. AB 14)**

A fundamental precept of the American tradition and U.S. Constitution is that a person's home is sacred. Homeowners have a fundamental right of self-defense



to protect themselves and families by all reasonable means from trespass, assault, and conversion by government or private entities licensed by governments without fair compensation.

The cases reported in the Addendum document how ordinary vulnerable citizens, their families and properties are being seriously harmed by RFR contamination, caused largely by commercial companies, delivered without and against occupants' consent, with no tender of fair compensation. Most victims are not wealthy. The financial costs of protecting their properties and securing medical treatment for an injured child can be an extreme hardship. For many, having to relocate to avoid these harms is also not an option. These are working people. They cannot easily find new jobs. No insurance is available because the risk of liability is so high; not one insurance company anywhere today, to the best of Amicus' knowledge, will extend coverage for RFR contamination.

The imposition of RFR contamination costs without fair compensation on people and businesses affects the entire population, but falls most cruelly and tragically on poor people, minorities, and the elderly, who have no medical, legal, or economic recourse at all. They are trapped.

**Protection from Wireless Radiation (excerpted from Declaration of Lawrence J. Gust, Addendum p. AB 14):**

The radiation in homes and apartments from the new network of small Wireless Telecom Facilities of 4G/5G systems, which include enhanced 4G antennas, accelerated, steerable, beam-forming 5G antennas, installed on

every residential street (about every 8 to 10 houses or approximately every 1,000 feet) will be very strong – 100,000 to 400,000  $\mu\text{W}/\text{m}^2$  – and requires the highest performance shielding materials.

Additionally, the highest performance shielding material may not be adequate to reduce the power density to a livable level, because the neighborhood 4G/5G system power density is so very high.

People can shield each bed by installing a RF shielding tent over the bed. However, in the case of strong 4G/5G radiation, residents will likely need to shield the room itself as well as tent the beds. This is because of unavoidable RF leakage in the tent and in a structure retrofitted with shielding. For example, 99% shielding effectiveness allows 1,000 out of 100,000  $\mu\text{W}/\text{m}^2$  to enter the house, where the BioInitiative Report recommended level is under 60  $\mu\text{W}/\text{m}^2$ .

### **Cost for RF Tents**

Shielding a parent's queen size bed with a RF protection tent starts at \$1,250 for moderate shielding capability and reaches to \$1,700 for shielding of strong radiation.

Shielding a child's single bed will cost \$1,000 to \$1,400 depending on the level of protection needed.

A family with two adults and two children, will have to spend \$3,200 to \$5,500.

### **Costs for RF Shielding of Bedrooms**

Building Biologists focus on sleeping areas because this is where people are most vulnerable to RFR; but this offers no protection to people who are home all day, like a mother with young children who don't want to or cannot stay in their bedrooms all day. (And this does not even address the exposure of people who want to enjoy their backyard.)

“People can shield the bedroom itself by painting the walls with RF protection paint and putting RF protection film on the windows instead of tenting the bed. The cost for painting including labor is about \$3.15/ft<sup>2</sup>. For an average 12' x 12' bedroom with two 3' x 4' double hung single pane windows, the cost is \$2,450.

A family of two adults and two older children in separate bedrooms would have to spend \$7,350.

### **Cost of Bedroom Protection Against the Intense 4G/5G Antennas on the Street**

That family of two adults and two older children who need both RF tents and bedroom shielding will have to spend \$12,850 (even assuming this will correct the problem, given the power density of neighborhood 4G/5G radiation).

### **Cost of Whole-house Protection from RF Radiation**

Although not always possible depending on the nature of the siding used on the house, the cost of applying RF protection paint to the average existing 2,000 ft<sup>2</sup> house by painting outside stucco walls and the inside ceilings on the top floor is \$14,000.

If the house is older than 1990, the windows will need to be shielded with RF protection film. With an average of one window per 100 ft<sup>2</sup>, this house would have 20 average 3'x 4' windows and would cost \$2,900 to shield.

Total cost for shielding the average 2,000 ft<sup>2</sup> house is \$16,900.

The average homeowner cannot afford a substantial loss in the value of residence, which is the principal family asset. (E.g., see “**Note on Economic Costs of RFR Contamination on Property Values**”<sup>3</sup>)

Research indicates that over 90% of home buyers and renters are less interested in properties near cell towers and would pay less for a property in close vicinity to cellular antennas. Documentation of a price drop up to 20% is found in multiple surveys and published articles as listed below. The US Department of Housing and Urban Development (HUD) considers cell towers as “Hazards and Nuisances.”<sup>4</sup>

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<sup>3</sup> <https://ehtrust.org/cell-phone-towers-lower-property-values-documentation-research/>

<sup>4</sup> Ibid.

#### IV. Summary of BBI Case Study Findings

The findings in the eleven cases reported in the Addendum confirm the following:

Notwithstanding that each victim and situation is unique, the cases reveal common patterns of symptoms, including headaches, loss of sleep, fatigue, cognitive impairment, anxiety, and in some instances, serious systemic physical and mental breakdown.

These symptoms are confirmed, along with others, in the substantial number of peer-reviewed studies cited by the Declarants. In other words, these scientific and clinical medical studies performed under rigorous protocols confirm a close nexus between different levels of RFR exposure and the symptoms and illnesses described.

BBI professionals have in each case identified the sources of RFR exposure including exterior (cell towers, smart meters, etc.) and interior sources (routers, computers, cell phones, other smart devices).

In every instance, BBI professionals have confirmed that the level of exposure was **significantly below** the permitted level established by the current FCC regulation, but **vastly higher** than that recognized as safe by BBI and other professionals in this field. (See Charts 1 & 2 below.)

BBI professionals measured these RFR exposures on-site and in some cases (exterior) at source with manufacturer-certified instruments following BBI established best protocols.

BBI professionals were thereby able to ascertain the **origins** and **pathways** of RFR exposure.

BBI professionals present their written assessments to clients, and obtain their consent to a program of remediation generally done by others. These recommendations in each instance followed established BBI protocols to eliminate or substantially to reduce exposure.

BBI professionals and their clients confirmed the initial results. **In all cases, RFR contamination was substantially reduced to levels significantly below the current FCC thermal regulation by orders of magnitude. Both the before and after RFR contamination levels were significantly below the current FCC thermal regulation (which is based on average measurement of power density) by orders of magnitude.**

Once this was accomplished, clients consistently reported that their conditions abated or vanished entirely, **notwithstanding the continuing existence of other possible toxic exposures in these environments.**

In most cases, BBI professionals followed up with their clients. In a good number of instances, **the symptoms did not recur.** With others, symptoms did

recur. In such cases, BBI professionals re-examined the sites and discovered that an **original source of RFR contamination had been reactivated**. When the original remediation was reinstated (e.g., reducing use of cell phones), clients report that their **symptoms were again immediately, measurably, and significantly reduced**.

#### **V. Legal Implications of BBI Case Studies with Reference to the FCC Order**

As Chart 1 illustrates, the current FCC RFR regulation, based solely on thermal exposure, is more lenient and favorable to the wireless industry than other national regulations. Chart 2 sets out the BBI standard which BBI professionals have used in the eleven cases to remediate serious harms that appear strongly correlated with the extremely high levels of exposure tolerated by the FCC guideline.

## Chart 1 — International RF Exposure Limits



**SAFE LIVING**  
Technologies Inc.

Creating Healthy Living Spaces

7 Clair Road West, P.O. Box 27051, Guelph, ON, N1L 0A0 • Tel 519.240.8735  
support@slt.co • [www.slt.co](http://www.slt.co)

### International Radio Frequency "RF" Exposure Limits for 1800 MHz Range (Cell Phone, WiFi, Smart Meters, etc)

Location	Reference	Exposure time	Limit Based On	Lower by	$\mu\text{W}/\text{m}^2$	V/m
Canada	Safety Code 6, Table 5	6 minutes	Thermal / Heating	-	10,000,000	61.4
USA	(FCC) IEEE C95.1-1999 and ICNIRP	30 minutes	Thermal / Heating	-	10,000,000	61.4
Most of Western Europe	IEEE C95.1-1999 and ICNIRP	30 minutes	Thermal / Heating	-	10,000,000	61.4
Russia	Sanitary Norms and Regulations 2.2.4/2.1.8.055-96	3 hours +	Biological Effects	100 x	100,000	6.14
China	UDC 614.898.5 GB 9175-88	3 hours +	Biological Effects	100 x	100,000	6.14
Italy	Sanitary Norms and Regulations 2.2.4/2.1.8.055-96	3 hours +	Biological Effects	100 x	100,000	6.14
Most of Eastern Europe	Sanitary Norms and Regulations 2.2.4/2.1.8.055-96	3 hours +	Biological Effects	100 x	100,000	6.14
Switzerland	Ordinance on Protection from Non-Ionising Radiation (NISV)	Long Term	Precautionary	100 x	100,000	6.14
Toronto Board of Health, Canada	Proposed 1999	Long Term	Precautionary	100 x	100,000	6.14
Bio-Initiative Report recommendation	Bio-Initiative Report 2007	Long Term	Biological / Precautionary	10,000 x	1,000	0.614
Salzburg Resolution on Mobile Telecommunication	Preventive public health protection, Salzburg, June 7-8, 2000	Long Term	Precautionary	10,000 x	1,000	0.614
European Parliament	Resolution 1815, Strasbourg, May 27, 2011	Long Term	Precautionary	10,000 x	106	0.2
Building Biology Guidelines Germany (Sleeping Areas)	SBM2008 - Level of No Biological Concern	Long Term	Precautionary	100,000,000 x	0.1	0.005,14
Cell Phone Operational Requirements				10,000,000,000 x	0.001	0.000,061,4
Natural Cosmic Radiation	MAES 2000	Long Term	Natural Exposure	10,000,000,000,000 x	0.000,001	0.000,000,061,4
Average Indoor Urban Exposure Toronto, Canada	Safe Living Technologies Inc. 2011	Long Term			200 - 5000	0.3 - 1.4



## Chart 2 — Radiofrequency/Microwave Exposure Guidelines



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7 Clair Road West, P.O. Box 27051, Guelph, ON, N1L 0A0 › Tel 519.240.8735  
support@slt.co › www.slt.co

### RADIOFREQUENCY / MICROWAVE EXPOSURE GUIDELINES

(High Frequency Electromagnetic Waves)

#### 1> BUILDING BIOLOGY PRECAUTIONARY GUIDELINES (SBM-2008) For Sleeping Areas

Power density in microwatt	No Concern	Slight Concern	Severe Concern	Extreme Concern
per square meter $\mu\text{W}/\text{m}^2$	< 0.1	0.1-10	10 - 1000	> 1000
per square cm $\mu\text{W}/\text{cm}^2$	< 0.000,01	0.000,01 - 0.001	0.001 - 0.1	> 0.1

#### 2> BIOINITIATIVE REPORT PRECAUTIONARY GUIDELINES (2007) [www.bioinitiative.org/](http://www.bioinitiative.org/)

Dr. Martin Blank - Columbia University

Biologically Based Precautionary Levels 1,000  $\mu\text{W}/\text{m}^2$  or 0.1  $\mu\text{W}/\text{cm}^2$

#### 3> CANADA AND USA GOVERNMENT GUIDELINES (1999)

In Canada, guidelines for Radio Frequency Wave exposure lay under the jurisdiction of Health Canada. Safety code 6 was developed in 1999 and offers federal guidelines for safe RF exposure levels. These limits are in the range of 2,000,000 to 10,000,000  $\mu\text{W}/\text{m}^2$  or 200 to 1000  $\mu\text{W}/\text{cm}^2$  and are based solely on the short term thermal effects or the heating of body tissue. Adverse biological effects have been documented at levels far below Safety Code 6 guidelines. No Canadian biological exposure guidelines exist for long term exposure to low level Radio Frequency Radiation. This also holds true for the USA.

### AC MAGNETIC & AC ELECTRIC FIELD EXPOSURE GUIDELINES

(Low Frequency Electromagnetic Fields ELF, VLF)

#### 1> BUILDING BIOLOGY EVALUATION GUIDELINES (SBM-2008) For Sleeping Areas

AC Magnetic - Flux Density	No Concern	Slight Concern	Severe Concern	Extreme Concern
in nanotesla nT	< 20	20-100	100 - 500	> 500
in milligauss mG	< 0.2	0.2-1	1-5	> 5
AC Electric Field strength with ground potential in volt per meterV/m	< 1	1-5	5 - 50	> 50
Body voltage with ground potential in millivolt mV	< 10	10-100	100 - 1000	> 1000
Field strength potential-free in volt per meterV/m	< 0.3	0.3-1.5	1.5 - 10	> 10

#### 2> BIOINITIATIVE REPORT PRECAUTIONARY GUIDELINES (2007) [www.bioinitiative.org/](http://www.bioinitiative.org/)

Dr. Martin Blank - Columbia University

AC Magnetic Field Levels 1-2 mG / 100-200 nT

AC Electric Field Levels – Not Addressed in Report

#### 3> CANADA AND USA GOVERNMENT GUIDELINES (1999)

In Canada, guidelines for EMF exposure lay under the jurisdiction of Health Canada. Health Canada has not independently established guidelines for magnetic field or electric field exposure. When pressed, they will state that Canada follows the International Commission on Non-Ionizing Radiation Protection "ICNIRP" guidelines of 830 mG or 83,000 nT (Magnetic Field) or 5000 V/m (Electric Field) for a 24-hr period. Since these guidelines are based on short-term acute exposure we still do not have guidelines that protect the public from long-term low level exposure, which is the case with the distribution of electricity. Associations based on epidemiological studies and cause-effect relationships based on laboratory experiments suggests that exposure to magnetic and electric fields should be thousands of times lower.

Safe Living Technologies® 2010



**Essential BBI Findings in Light of the FCC Order:**

1. The present FCC thermal regulation today exposes a large percentage of the population to extremely high levels of RFR contamination, which a substantial body of peer-reviewed scientific studies, cited by Petitioners EHT and CHD in their joint brief, confirms is very hazardous to humans and other living things. The FCC order appears to disregard the scientific record entirely.
2. In not one instance have any of the victims, whose stories are described in the Declarations, consented to such RFR contamination.
3. In many cases people are becoming ill, notwithstanding that exposure levels are within the FCC thermal regulation, as measured and confirmed by the state-of-the-art instruments used by Building Biologists.
4. The causal nexus between the levels of RFR exposure and subsequent injury is clear and close. When the specific sources of contamination are identified, isolated, and eliminated, the victims' symptoms in almost all cases abate. When the sources of contamination are resumed, the victims' symptoms reappear.

BBI professionals can precisely isolate the source. Here is an excerpt from Declaration 6 of Liz Menkes, [Case 3 \(Cynthia\)](#) (Addendum, p. AB 26, at 31):

**Radio Frequency Radiation ( $\mu\text{W}/\text{m}^2$ )**

<b><u>Location</u></b>	<b><u>Readings</u></b>
Desk	18,000
Bathroom	21,000
Bed	36,000
Kitchen	20,000

The comments note:

“These readings are all in the Building Biology ‘Extreme Concern’ range. Over 1,000  $\mu\text{W}/\text{m}^2$  is considered ‘Extreme Concern’ for the sleeping area. The source of the Radio Frequency Exposure was primarily coming from a cell tower located about 900 feet from Cynthia’s apartment. The levels measured in every room of Cynthia’s apartment are considered in the Building Biology ‘Extreme Concern’ range of over 1,000  $\mu\text{W}/\text{m}^2$ .”

The important point is **every one of these measurable sources of RFR contamination can be isolated and eliminated**; if necessary, the entire power supply of a building can be turned off and the RFR contamination from a single cell tower measured, and in many cases, remediation from this specific source implemented.

5. The cases involve ordinary people who have not hitherto been chronically exposed to RFR. Some of these people have special sensitivity to RFR, while others do not. For both classes of victims, the introduction of RFR protective measures significantly ameliorated the situation.
6. The Case Studies are based on aggregate exposure from multiple sources of RFR contamination, which is not currently recognized in the present FCC thermal regulation. This is a unique contribution of BBI analysis.
7. There is also here a deep question of health injustice. Protection of homes and workplaces from RFR contamination is very expensive for ordinary working people. But for economically disadvantaged citizens, minorities, disabled persons, and other vulnerable populations, the services of a Building Biologist

are not an option.<sup>5</sup> There is simply nowhere for them to go to escape RFR exposure. The present FCC thermal regulation, in addition to lacking any sound scientific foundation, as pointed out by Petitioners, is perpetrating a continuing, ever-expanding, and cruel injustice.

## CONCLUSION

The FCC Order is profoundly out of touch with the reality that harmful 4G/5G and in the near future, 6G installations are accelerating and densifying each day throughout the United States. The FCC, by its own admission, does not have the competence or resources to assess the terrible harms it is permitting by its Order. Amicus, Building Biology Institute, offers a unique perspective on preventable human suffering that is occurring as a result of the FCC's deeply flawed policy, as set forth in the briefs by Petitioners Environmental Health Trust and Children's Health Defense, Amicus Natural Resources Defense Council, and other Amici.

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<sup>5</sup> The FCC Order does not appear to reflect any consideration of health and environmental justice as a civil and basic human right, nor does it consider the crushing economic burden the Order is placing on these most vulnerable populations. See e.g.,: "Civil rights as determinants of public health and racial and ethnic health equity: Health care, education, employment, and housing in the United States," Science Direct, Vol. 4, April 2018, pp. 17-24 <https://www.sciencedirect.com/science/article/pii/S235282731730191X>; "Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes," United Nations Office of the High Commissioner for Human Rights, <https://www.ohchr.org/en/issues/environment/toxicwastes/pages/srtoxicwastesindex.aspx>

Amicus, Building Biology Institute, has developed an expanding body of best practices to measure and to remediate building environments, both residential and commercial, that are contaminated by RFR exposure. BBI has trained and certified hundreds of professionals to date. BBI's methodologies and measurement protocols are based on peer-reviewed scientific and field studies and practices that can be tested, validated, replicated, and communicated to other professionals. They are continuously updated, assessed, and refined.

Since its establishment in 1987, BBI has tested and remediated tens of thousands of sites, including renters, homeowners and businesses. In a great majority of these engagements, BBI professionals have successfully identified the RFR contamination challenge, formulated a coherent remediation plan, and successfully implemented the plan, reducing or eliminating the RFR risk. This practice has thereby alleviated the suffering of the victims of RFR contamination, and in some cases, has saved peoples' lives.

Tragically, the services of BBI professionals are expensive, which means that only those who can afford them can be protected. Some of the most vulnerable populations — economically disadvantaged communities, minorities, and elderly citizens — are left without recourse. The huge financial cost of illnesses and other economic losses caused by RFR contamination today fall entirely on the helpless

public, because no reputable insurance company anywhere in the world is willing to underwrite insurance for RFR-related harms. They are deemed simply too risky.

The Court has an historic opportunity to require the FCC to replace the *carte blanche* blanket license to the wireless industry that exists today, as embodied in its present Order; and to formulate and implement a health regulation that is supported by the available scientific evidence, cited in the Petitioners' brief and by other amici. Contrary to the odd statement, "*we don't deal with humans, only frequencies,*" attributed to an FCC spokesman in the petitioner's brief in *Children's Health Defense v. FCC*, Case. No. 20-70297<sup>6</sup>, the FCC's first and ultimate fiduciary responsibility is not to "frequencies," but to the People. The FCC has failed to carry out its duty to ensure that the RFR regulation it authorizes adequately protects health and safety. The Commission did not engage in reasoned decision making; it failed to address the evidence and comments and erred in its determinations.

Movant respectfully requests the Court to review and vacate and to remand the Order, to require the FCC meaningfully to review all of the evidence presented, and issue a revised Order implementing far more protective RFR maximum exposure regulations.

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<sup>6</sup> The petitions in 20-70297 were transferred to this Court on April 24, 2020, with 20-1138 then consolidated with 20-1025 (lead case) on April 30, 2020 (Doc. #1840768)

Respectfully submitted,

*/s/ James S. Turner*

James S. Turner  
Swankin & Turner  
1601 18th St. NW #4  
Washington, DC 20009  
Tel: (202) 462-8800  
Fax: (202) 315-2501  
[jim@swankin-turner.com](mailto:jim@swankin-turner.com)  
*Counsel for Amicus Curiae*

*/s/ Julian Gresser*

Julian Gresser, Of Counsel  
Swankin & Turner  
P.O. Box 30397  
Santa Barbara, CA 93130  
Tel: (805) 708-1864  
[juliangresser77@gmail.com](mailto:juliangresser77@gmail.com)  
*Counsel for Amicus Curiae*

August 5, 2020

## CERTIFICATE OF COMPLIANCE

1. This brief complies with the type-volume limitation of Fed. R. App. P. 29(a)(5) because this brief contains 5,064 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(f). This statement is based on the word count function of Microsoft Word.

2. This brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements of Fed. R. App. P. 32(a)(6) because this brief has been prepared in a proportionally spaced typeface using Microsoft Word in 14-point Times New Roman font for the main text and 14-point Times New Roman font for footnotes.

/s/ James S. Turner

James S. Turner  
Swankin & Turner  
1601 18th St. NW #4  
Washington, DC 20009  
Tel: (202) 462-8800  
Fax: (202) 315-2501  
[jim@swankin-turner.com](mailto:jim@swankin-turner.com)  
*Counsel for Amicus Curiae*

**CERTIFICATE OF SERVICE**

I hereby certify that on this 5th day of August, 2020, I electronically filed the foregoing Amicus Brief in Support of Petitioners on behalf of Building Biology Institute with the Clerk of the Court for the United States Court of Appeals for the District of Columbia by using the Court's CM/ECF system. I further certify that service was accomplished on all participants in the case via the Court's CM/ECF system.

/s/ James S. Turner

James S. Turner  
Swankin & Turner  
1601 18th St. NW #4  
Washington, DC 20009  
Tel: (202) 462-8800  
Fax: (202) 315-2501  
[jim@swankin-turner.com](mailto:jim@swankin-turner.com)  
*Counsel for Amicus Curiae*